



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3171
Plant ID No.: 103-00082
Applicant: Stone Energy Corporation
Facility Name: Howell Well Pad Production Facility
Location: near New Martinsville, Wetzel County
NAICS Code: 211111
Application Type: Construction
Received Date: February 3, 2014
Engineer Assigned: Jill Harris, P.E.
Fee Amount: \$2,000.00
Date Received: February 3, 2014
Complete Date: February 24, 2014
Due Date: May 25, 2014
Applicant Ad Date: February 12, 2014
Newspaper: *The Wetzel Chronicle*
UTM's: Easting: 517.6642 km Northing: 4,382.9305 km Zone: 17
Description: Installation of gas well pad production equipment.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3171:

Natural gas and produced fluids (condensate and water) will be received from ten (10) wells on this location at approximately 500 psi and pass through heaters (one per well) to avoid ice formation during subsequent pressure drops. These materials will then pass through a three-way separator where gas, condensate and water are separated. The gas will be routed to a gathering pipeline.

Condensate will normally be injected into a liquids pipeline owned and operated by others. However, as a back-up to this pipeline, provisions will be made to stabilize the condensate through heating and pressure reduction, coupled with vapor recovery. The stabilized condensate will be accumulated in four (4) 400 bbl tanks, pending truck transportation by others to a regional processing facility for separation into individual products. Flash, working and breathing losses from these tanks will be routed to two (2) vapor recovery units (VRUs) with the captured

vapors routed back to the discharge line. In the event of shut down of the VRU's due to maintenance or equipment failure, the vapors from the condensate tanks will be routed to two vapor combustion units operating in parallel. Vapors generated during truck loading of condensate will be routed to the two vapor combustion units.

The produced water, and water generated during the fuel gas conditioning process will be accumulated in two (2) 400 bbl tanks pending transportation via pipeline to a Stone Energy water management facility. Nominal flash gas vapors from these tanks (modeled at 8 SCFD and conservatively estimated at 120 SCFD for permitting purposes) will be vented to the atmosphere. These vapors are comprised solely of flash gases generated during the drop to atmospheric pressure.

Three (3) gas-fired generators will also be present to provide electric service for the facility instrumentation and controllers and to operate the pumps.

All natural gas fired equipment use natural gas received at the station as fuel.

SOURCE AGGREGATION

Stone Energy Corporation (Stone) plans to install a new natural gas well production facility in Wetzel County that will receive raw natural gas and associated produced fluids from the wells on the Stone Energy Howell Well Pad. After separation of the liquids, the gas will be injected into a gathering line for transportation to one of Ohio Valley Midstream's processing plants where the gas will be processed into transmission quality gas. Stone Energy and Williams will share the same first two digit SIC codes. In addition, the two facilities are close in proximity (0.3 miles) apart. However, Stone Energy and Ohio Valley Midstream are not under common control for the following reasons.

- Stone Energy and Ohio Valley Midstream are separate corporate entities. They do not share common workforces, managers, security forces, corporate executives or board members.
- Stone Energy managers and workers will operate and maintain the Howell Well Pad Facility and Ohio Valley Midstream managers and workers will operate and maintain the Stillwagner Compressor Station. There will be no sharing or active involvement by personnel of one company in the operation of the other's facility.
- There is no sharing of common payroll activities, employee benefits, health plans, retirement funds, insurance coverage or other administrative services.
- Stone Energy pays Ohio Valley Midstream a fee for moving its gas to one of its processing facilities.
- There is no sharing of equipment, property or pollution control equipment between Stone Energy and Ohio Valley Midstream. No decision in the operation of the Howell Well Pad Production Facility by Stone will impact decisions by Ohio Valley Midstream on the operation of pollution control equipment at the Stillwagner Compressor Station. Conversely, no decision in the operation of Stillwagner Compressor Station by Ohio Valley Midstream will impact decisions by Stone Energy regarding the operation of pollution control equipment by Stone Energy at the Howell Well Pad Production Facility.

- The Stillwagner Compressor Station receives natural gas from multiple well pads and will soon receive gas from Stone Energy's Howell Well Pad. Conversely, all natural gas produced by these various well pads will, within the confines of the respective contractual agreement, be managed by Ohio Valley Midstream at the Stillwagner Compressor Station. Thus, there is a temporary contractual dependency. However, Stone Energy has contracts with others in place and will soon have the ability for management of gas from Howell by others within the confines of that second contractual agreement. Ohio Valley can and does also provide these gas management services to other local producers that are seeking such midstream services.
- Gas flow from the Howell Well pad will represent less than 50% of the capacity of the Stillwagner Compressor Station

While the services of the Stillwagner Compressor Station are certainly desired by Stone Energy, gas from the Howell Well Pad can still be routed directly to the Ohio Valley Midstream processing plant without the services of Stillwagner. Stone will soon have the ability to route this same gas to compression facilities other than Stillwagner to perform this same service.

SITE INSPECTION

Doug Hammell from DAQ's Enforcement Section inspected the Howell site on February 27, 2014. The closest residence is ~1,800 ft away. Pictures are available in the file.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Table 1 explains the calculation for each emission source.

Table 1: Calculation Methodology

Emission Unit ID	Emission Unit Description	Calculation Methodology
CE-1 & CE-2	225 hp Flash Gas Compressor Engines (Cummins GTA855)	Manufacturer's Emission Data for NO _x , CO, VOC, CO ₂ and CO ₂ e, CH ₄ and CH ₂ O. EPA AP-42 Emission Data for 4SRB Engines (7/00).
VCU-1 & VCU-2	Thermal Oxidizer	NO _x , CO, CO ₂ , CO ₂ e, CH ₄ , N ₂ O and PM based on EPA AP-42 Emission Data, Table 13.5-1 and 40 CFR 98 Table C-1, C-2 and C-3. VOC emissions are based on HYSYS model for flashing/working/breathing losses for condensate tanks and AP-42 Emission Data, Section 5.2.2.1.1. Loading Losses. Control Efficiency based on manufacturer's guarantee.
N/A	Truck Loading	EPA AP-42 Emission Data Section 5.2.2.1.1. Loading Losses.
T05 – T06	400 bbl Produced Water Tanks	HYSYS model for flashing/working/breathing losses.
GN-1	25 hp Generator Engine	Manufacturer's Emission Data for NO _x , CO and VOC. EPA AP-42 Emission Data for Natural Gas-fired Reciprocating 4SRB Engines, Table 3.2-3 (7/00).
GN-2	25 hp Generator Engine	Manufacturer's Emission Data for NO _x , CO and VOC. EPA AP-42 Emission Data for Natural Gas-fired Reciprocating 4SRB Engines, Table 3.2-3 (7/00).
GN-3	637 hp Generator Engine	Manufacturer's Emission Data for NO _x , CO and VOC. EPA AP-42 Emission Data for Natural Gas-fired Reciprocating 4SLB Engines, Table 3.2-2 (7/00).
T01-T04	400 bbl Condensate Tanks	HYSYS model for flashing/working/breathing losses.
HTR-1	0.75 MMBtu/hr ten (10) Line Heaters	EPA AP-42 Emission Data Natural Gas Combustion, Table 1.4-1, 1.4-2 and 1.4-3 (7/98).
HTR-2	0.75 MMBtu/hr two (2) Line Heaters	EPA AP-42 Emission Data Natural Gas Combustion, Table 1.4-1, 1.4-2 and 1.4-3 (7/98).
CE-3 & CE-4	118 hp VRU Compressor Engines (Cummins G8.3)	Manufacturer's Emission Data for NO _x , CO, VOC, CO ₂ , CO ₂ e and CH ₂ O. EPA AP-42 Emission Data for Natural Gas-fired Reciprocating 4SRB Engines, Table 3.2-3 (7/00).

Emission Unit ID	Emission Unit Description	Calculation Methodology
N/A	Fugitive Emissions	Emission factors from 40 CFR 98 Table W-1A

The Table 2 indicates the control device efficiencies that are required for this facility:

Table 2: Control Device

Emission Unit	Pollutant	Control Device	Control Efficiency
T01-T04 Condensate Tanks Truck Loading Operations	VOC	VCU-1A and VCU-1B Vapor Combustors	98%
	HAP		

Table 3: Hourly PTE of Criteria Pollutants and GHG

Source ID & Description	NOx	CO	PM	VOC	SO2	CO2e
CE-1	0.5	0.99	0.04	0.35	0.00114	274
CE-2	0.5	0.99	0.04	0.35	0.00114	274
CE-3	0.26	0.52	0.02	3.8	0.00057	124
CE-4	0.26	0.52	0.02	3.8	0.00057	124
HTR-1	0.6051	0.5083	0.046	0.0333	0.0036	731
GN-1	0.19748	1.38122	6.00E-05	0.0847	3.70E-06	26
GN-2	0.19748	1.38122	6.00E-05	0.0847	3.70E-06	26
GN-3	1.4	2.77	0.05179	0.31	0.00314	766
VCU-1 & VCU-2	1.22	6.64	0.0453	16.13	0	2,169.12
HTR-2	0.121	0.1017	0.0092	0.0067	0.0007	146
Fugitive	-	-	-	0.465	-	7
Condensate Truck Unloading (Uncaptured)	-	-	-	0.45	-	1.39
Produced Water Tank (Flash Only) (T05- T06)	-	-	-	0.45	-	-
Hourly PTE (lb/hr)	5.26106	15.8024	0.27241	26.3144	0.01087	4668.51

Table 4: Annual PTE of Criteria Pollutants and GHG

Source ID & Description	NOx	CO	PM	VOC	SO2	CO2e
CE-1	2.17	4.35	0.16	1.52	0.005	1,199
CE-2	2.17	4.35	0.16	1.52	0.005	1,199
CE-3	1.14	2.28	0.08	16.65	0.0025	542
CE-4	1.14	2.28	0.08	16.65	0.0025	542
HTR-1	2.65	2.226	0.201	0.146	0.016	3,200
GN-1	0.865	6.0497	0.0001	0.371	0.0003	116
GN-2	0.865	6.0497	0.0001	0.371	0.0003	116
GN-3	6.15	12.12	0.2268	1.35	0.0137	3353
VCU-1 & VCU-2	0.35	1.9	0.013	4.77	0	615.78
HTR-2	0.53	0.445	0.04	0.029	0.003	640
Fugitive	-	-	-	2.039	-	31.92
Condensate Truck Unloading (Uncaptured)	-	-	-	0.53	-	-
Produced Water Tank (Flash Only) (T05- T06)	-	-	-	1.99	-	6.09
Flash Gas Compressor Blowdowns	-	-	-	0.03	-	2.7
Annual PTE (tpy)	18.03	42.0504	0.961	47.966	0.0483	11563.5

Table 5: Annual Emissions of Hazardous Air Pollutants (HAP)

Source ID & Description	Acrolein	Acetaldehyde	Formaldehyde	Benzene	Toluene	Methanol	Xylene	Total HAPs
CE-1	0.022	0.0233	0.2173	0.0132	0.0047	0.0256	0.0016	0.3078
CE-2	0.022	0.0233	0.2173	0.0132	0.0047	0.0256	0.0016	0.3078
CE-3	0.0109	0.0116	0.0912	0.0066	0.0023	0.0127	0.0008	0.1361
CE-4	0.0109	0.0116	0.0912	0.0066	0.0023	0.0127	0.0008	0.1361
HTR-1			0.002					
GN-1	0.0001	0.0001	0.007	0	0	0.0001	0	0.0073
GN-2	0.0001	0.0001	0.007	0	0	0.0001	0	0.0073
GN-3	0.1177	0.0998	0.8611	0.003	0.0093	0.0572	0.0042	1.1835
VCU-1 & VCU-2	-	-	0.0001	0.01	0	-	-	0.0632
HTR-2	-	-	0	-	-	-	-	-
Fugitive	-	-	-	-	-	-	-	-
Condensate Truck Unloading (Uncaptured)	-	-	-	-	-	-	-	-
Produced Water Tank (Flash Only) (T05- T06)	-	-	-	-	-	-	-	-
Flash Gas Compressor Blowdowns	-	-	-	-	-	-	-	-
Annual PTE (tpy)	0.1837	0.1698	1.4942	0.0526	0.0233	0.134	0.009	2.1491

REGULATORY APPLICABILITY

The following rules apply to the facility:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of each of the proposed line heaters (HTR-1, HTR-2) is below 10 MMBTU/hr (0.75 MMBtu/hr proposed heaters). Therefore, this unit is exempt from the aforementioned sections of 45CSR2.

Stone would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average. The facility will demonstrate compliance with the section of the rule by conducting Method 9 visual operations at the request of the Director.

45CSR6 (Control of Air Pollution from Combustion of Refuse)

This rule establishes emission standards for particulate matter and requirements for particulate matter and requirements for activities involving incineration of refuse which are not subject to, or are exempted from regulation under a federal counterpart for specific combustion sources. This rule also prohibits open burning and sets forth the registration, permitting, reporting, testing, emergency, natural disaster and exemption provisions for activities involving the combustion of refuse and land clearing debris.

The facility has proposed two (2) vapor combustors for controlling the working/breathing/flashing emissions from the condensate/produced water storage tanks. The vapor combustors must meet the requirements for the emission standards set forth in section 4.1 of this rule, were the allowable particulate matter emission rate to be discharged is determined below.

Emissions (lb/hr) = F x Incinerator Capacity (tons/hr)

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions.

Incinerator Capacity Factor F

A. Less than 15,000 lbs/hr 5.43

B. 15,000 lbs/hr or greater 2.72

Emissions to the incinerator (VCU-1, VCU-2) are 855.3 lbs waste gas/hr maximum or 0.43 tons/hr.

Allowable Particulate Emissions (lb/hr) = 5.43 x 0.43 tons/hr = 2.33 lb/hr

The hourly particulate matter emission rate from each of the vapor combustors (VCU-1, VCU-2) is 0.05 lb/hr.

The facility's proposed combustors will meet the emission requirements of this rule. The facility will demonstrate compliance by maintaining and operating the combustors properly.

The vapor combustors must meet the visible emissions requirements of this rule, which limits the combustor to 20% opacity during operation per section 4.3 of this rule. Since particulate matter is expected to be emitted at a negligible rate, the vapor combustors should meet the requirements of this section. The permittee will be required to operate the vapor combustors according to manufacturer specifications in order to maintain a smokeless operation. The permittee will also be required to conduct a Method 22 opacity check upon startup and monthly checks of the vapor combustors and Method 9 opacity checks upon request of the Director.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides) (*non-applicability*)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of each of the proposed line heaters (HTR-1, HTR-2) is below 10 MMBTU/hr (0.75 MMBtu/hr proposed heaters). Therefore, this unit is exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that Stone exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR60 OOOO – gas wells, reciprocating compressors).

Stone paid the appropriate application fee and published the required legal advertisement for a construction permit application. The facility published the legal ad in the Wetzel Chronicle on February 12, 2014. The agency will publish a legal ad in the Wetzel Chronicle for a 30 day public comment period.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subparts JJJJ and OOOO. These requirements are discussed under that rule below.

45CSR22 (Air Quality Management Fee Program)

Stone is not subject to 45CSR30. The facility is subject to 40CFR60 OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Stone is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines)

The facility has proposed the following engines at the site.

Equipment No. ID	Manufacture's Rated bhp	Engine Type	Manufactured Date
CE-1	225 hp	RB4S	2013
CE-2	225 hp	RB4S	2013
CE-3	118 hp	RB4S	2013
CE-4	118 hp	RB4S	2013
GN-1	25 hp	RB4S	2012
GN-2	25 hp	RB4S	2012
GN-3	637 hp	LB4S	After 2010

GN-1 and GN-2 are subject to the requirements of this subpart because they are engines that are equal to 25 hp and manufactured after July 1, 2008. (§60.4230(a)(4)(iii))

CE-1, CE-2, CE-3 and CE-4 are subject to the requirements of this subpart because they are engines that are engines manufactured after July 1, 2008 with a maximum engine power less than 500 hp. (§60.4230(a)(4)(iii))

GN-3 is subject to the requirements of this subpart because the engine was manufactured after January 1, 2008, is a lean burn engine and has a maximum engine power greater than 500 hp and less than 1,350 hp. (§60.4230(a)(4)(ii))

Emission Limitations:

Engines GN-1 and GN-2 are subject to the emission limitation requirements set forth in §60.4233(a), which states that owners and operators of stationary SI ICE with a maximum engine power equal to 25 hp manufactured after July 1, 2008, must comply with the emission standards in §60.4231(a) for their stationary SI ICE. The engines have an engine displacement of 1.6 L or 1,600 ml or 1,600 cc. §60.4231(a) states the engines

must meet the requirements of 40 CFR part 1054. Emission standards set forth are HC + NOx 8.0 g/KW-hr and CO 610 g/KW-hr. The proposed engines have emissions data of HC + NOx 6.89 g/KW-hr and CO 610 g/KW-hr.

Engines CE-1, CE-2, CE-3, CE-4 and GN-3 must comply with the emission standards set forth in §60.4233(e). This section states that owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 hp must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE.

Table 1 to Subpart JJJ of Part 60 – NOx, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥ 100 HP

Equipment ID No.	Engine type and fuel	Maximum engine power	Manufacture date	Emission standards g/HP-hr			Manufacturer's Emission g/HP-hr		
				NOx	CO	VOC	NOx	CO	VOC
CE-1, CE-2, CE-3, CE-4	Non-Emergency SI Natural Gas	100≤HP<500	1/1/2011	1.0	2.0	0.7	1.0	2.0	0.7
GN-3	Non-Emergency SI Lean Burn Natural Gas	500≤HP<1,350	7/1/2010	1.0	2.0	0.7	1.0	1.97	0.22

Compliance Requirements:

GN-1 and GN-2 must comply with §60.4243(a)(2)(i), which requires the facility to maintain maintenance plan and records of conducted maintenance. No performance testing is required.

CE-1, CE-2, CE-3, CE-4 must comply with §60.4243(b)(2)(i), which requires maintenance plan and records of conducted maintenance. An initial performance test is required. Testing will be demonstrated in accordance with §60.4244.

GN-3 must comply with §60.4243(b)(2)(ii), which requires a maintenance plan and records of conducted maintenance. An initial performance test is required and subsequent performance testing every 8,760 hours or 3 years, whichever comes first. Testing will be demonstrated in accordance with §60.4244.

Notification, Reporting and Recordkeeping:

The facility will demonstrate compliance with the recordkeeping provided in §60.4245(a). Initial notification for GN-3 must be demonstrated with §60.4245(c). Engines that require performance testing must demonstrate compliance with §60.4245(d).

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this subpart:

- a. Each gas well affected facility, which is a single natural gas well.

The gas wells that currently exist at this facility were drilled principally for the production of natural gas and were done so after August 23, 2011. Therefore, these wells would be considered affected facilities under this subpart. The compliance date for these hydraulically fractured wells is October 15, 2012. Stone is required under §60.5410 to submit an initial notification, initial annual report, maintain a log of records for each well completion, and maintain records of location and method of compliance. §60.5420 requires Stone demonstrate continuous compliance by submitting reports and maintaining records for each completion operation.

- b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are no centrifugal compressors at this facility. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

- c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are reciprocating internal combustion engines located at this facility. Since this is a well site, the reciprocating internal combustion engines are not subject to the requirements of this subpart.

d. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.
- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

The facility has estimated and stated in their fugitive emission calculations that they are using low bleed pneumatic controllers with an estimated flow of 1.39 scf/hr. Therefore, the facility is not subject to the requirements of this subpart.

e. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.
- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee

must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.

There are two (2) produced water tanks and four (4) condensate tanks located at the facility. The tanks are controlled by a vapor combustor unit 5% of the time for backup and by vapor recovery units 95% of the time. The vapor combustor will have a manufacturer's guarantee control efficiency from the manufacturer of 98%. The facility has installed the proper controls and monitoring to ensure the vapor recovery units will operate at a minimum of 99% efficiency. Since the facility is proposing to install a vapor combustor to control VOC emissions from the storage vessels and obtain a federally enforceable limit in their permit, the facility will not be required to reduce emissions by 95% or greater with 60 days of startup. Controlled emissions from the storage tanks are 16.65 tpy (VRU) and 4.77 tpy (Vapor Combustors). Divide between four (4) condensate tanks the total emissions from each condensate tank would be ~5.35 tpy VOC. The produced water tanks have an aggregate total of 1.99 tpy VOC. The tanks will be below the 6 tpy VOC limit for each tank onsite.

- f. The group of all equipment, except compressors, within a process unit is an affected facility.
- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.
 - Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.
 - The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

The facility is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.

- g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.
- Each sweetening unit that processes natural gas is an affected facility; and

- Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.
- Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H₂S) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423(c) but are not required to comply with §§60.5405 through 60.5407 and paragraphs 60.5410(g) and 60.5415(g) of this subpart.
- Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere are not subject to §§60.5405 through 60.5407, 60.5410(g), 60.5415(g), and 60.5423 of this subpart.

There are no sweetening units at this facility. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

40CFR63 Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

The facility is a minor source of hazardous air pollutants (HAPS < 10 tpy of an individual HAP and < 25 tpy of aggregate HAPs). The facility is therefore considered an area source (§63.6585(c)). The engines are considered new stationary RICE (§63.6590(a)(2)(iii)).

Stationary RICE subject to Regulations under 40 CFR Part 60 must meet the requirements of those subparts that apply (40 CFR 60 Subpart JJJJ, for spark ignition engines) if the engine is a new stationary RICE located at an area source (§63.6590(c)(1)). No further requirements apply for such engines under this part.

The following rules do not apply.

45CSR30 (Requirements for Operating Permits)

Stone is not subject to 45CSR30. This facility is subject to 40CFR60 Subparts OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters (19,812.9 gallons). The largest tanks that Stone has proposed to install are 400 bbl (16,800 gallons) each. Therefore, Stone would not be subject to this rule.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. This facility is not a natural gas processing facility, therefore, Stone is not subject to this rule.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

This facility is located in Wetzel County, which is an attainment county for all criteria pollutants, therefore this facility is not applicable to 45CSR19.

As stated in the Source Aggregation section above, Stone is not subject to 45CSR14 or 45CSR19 review.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Howell (tpy)	45CSR14 or 45CSR19 Review Required
Carbon Monoxide	250	N/A (attainment)	42.04	No
Nitrogen Oxides	250	N/A (attainment)	18.03	No
Sulfur Dioxides	250	N/A (attainment)	0.05	No
Particulate Matter _{2.5}	250	N/A (attainment)	0.96	No
Ozone (VOC)	250	N/A (attainment)	47.96	No
Greenhouse Gas (CO ₂ e)	100,000	N/A (attainment)	11,564	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

MONITORING OF OPERATIONS

Stone will be required to perform the following monitoring:

1. Monitor on a monthly and yearly basis, the amount of natural gas consumed in the engines and heaters.
2. Inspect and properly maintain all catalytic reduction devices on the engines.
3. Conduct initial Method 22 and monthly visible emission checks on the heaters.
4. Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
5. Conduct initial Method 22 and monthly visible emissions checks of the vapor combustors.
6. Monitor on a monthly and yearly basis, the throughput of the produced water tanks, condensate tanks and vapor combustors.
7. Continuously monitor the presence of a flame in the vapor combustors.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Stone meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Wetzel County location should be granted a 45CSR13 construction permit for their facility.

Jill Harris, P.E.
Engineer

Date